

Air Quality LS 2.5
What Are Atoms, and Why Do They Join Together?

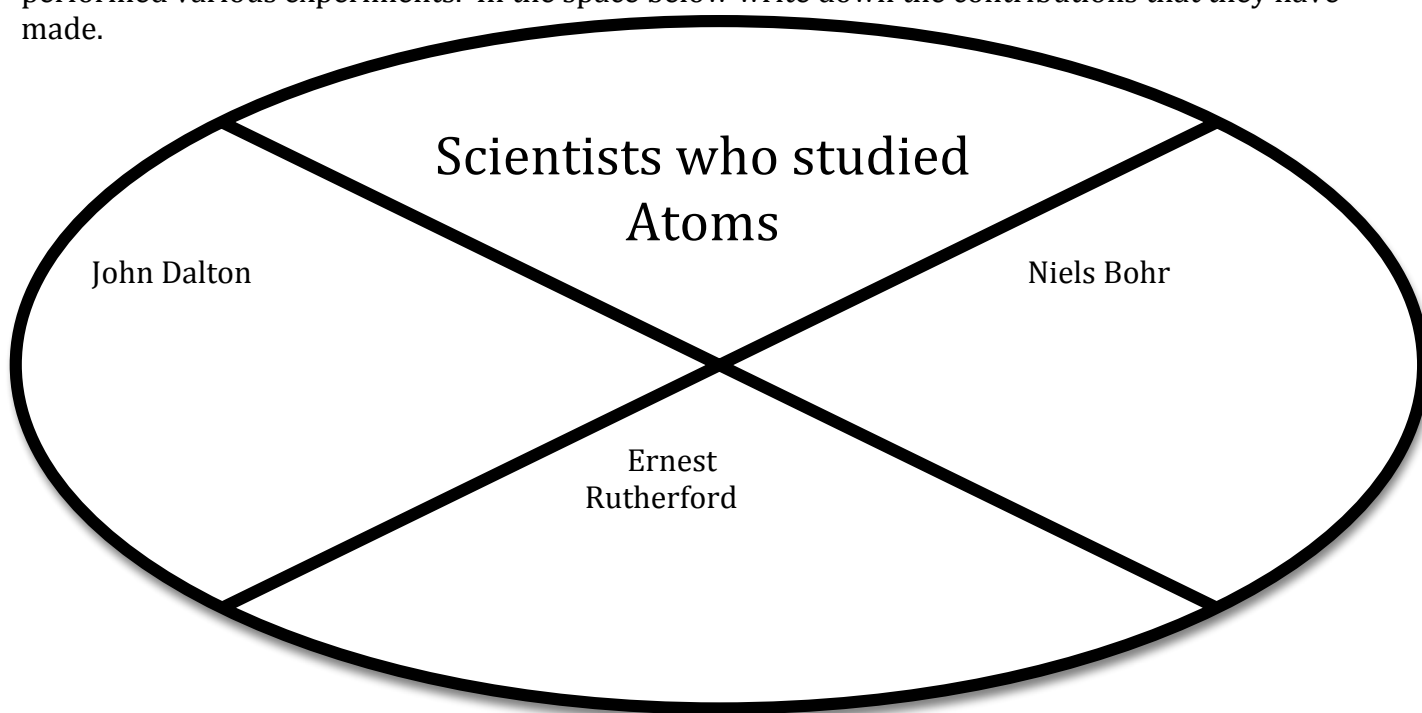


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Read page 85-86 as a class.

1. Why is the atomic theory so important to scientists?
2. What is a theory?
3. What has to happen before a theory can be changed?
4. Through the years the atomic theory has developed, what two things went into developing the atomic theory? (paragraph 3)
5. How did Ernest Rutherford and Niels Bohr refine Dalton's theory? (use the timeline)

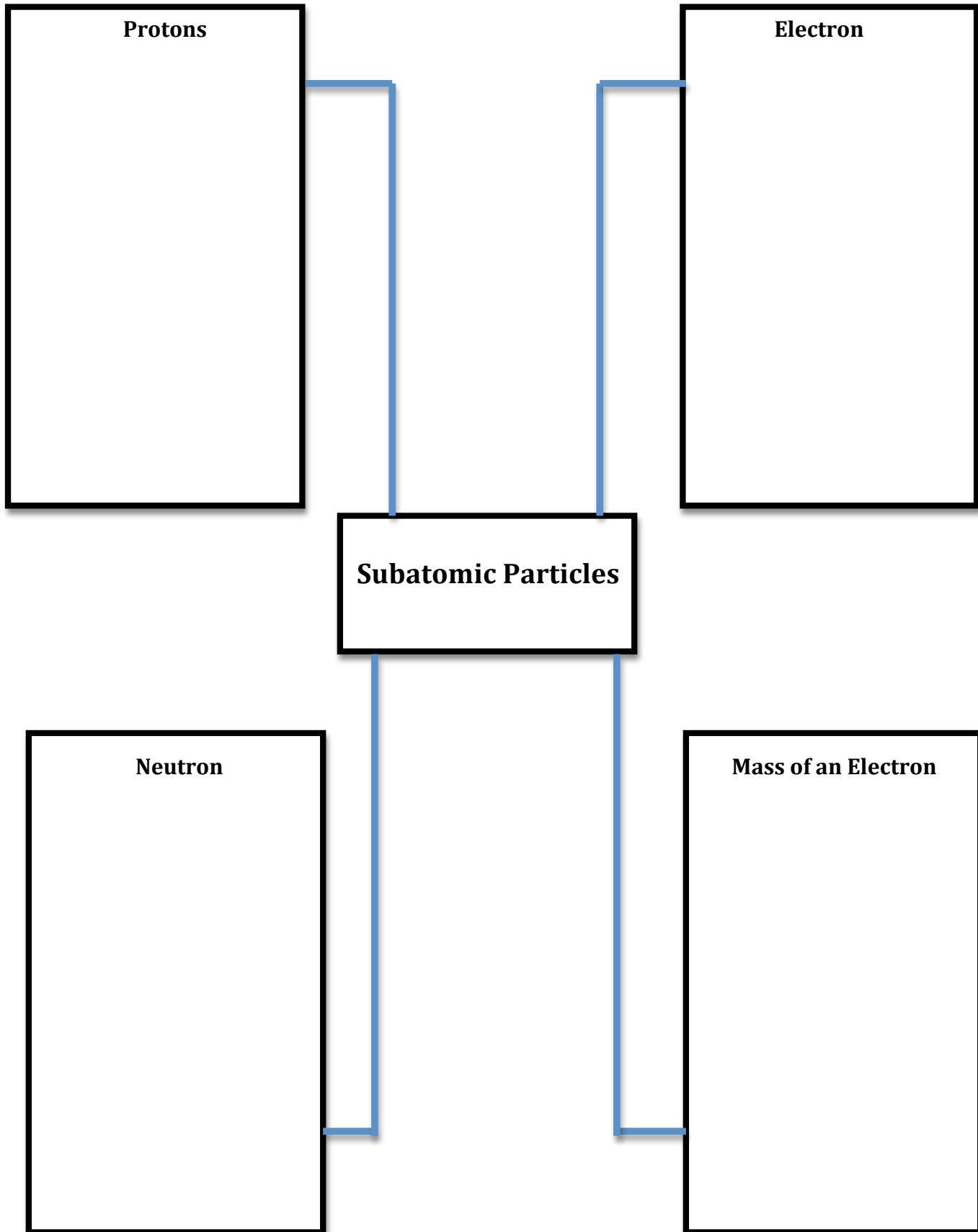
Read. Pages 86-87. John Dalton, Ernest Rutherford and Niels Bohr all made various discoveries and performed various experiments. In the space below write down the contributions that they have made.



How Big Is an Atom?

1. How many atoms can fit on a one-centimeter line?
2. All matter is made up of atoms, but most of the _____ of an atom is _____ space.

Read page 88 The Parts of Atoms and write the location of the subatomic particles and details of each.





Read. Finish reading page 88.

Charged Particles

1. Atomic theory depends on electric charges. Explain how protons and electrons hold the atom together.

Investigation: Electric Charges

Your teacher will instruct how you will perform this lab.



Analyze Your Data

1. What happened when you brought the strips close together?
2. What do your observations suggest about the electric charges on the two strips of tape?
3. How do you think the two strips of tape became electrically charged?

Predict: You are going to make a second set of top and bottom pieces of tape.

1. What do you think will happen if you bring two top pieces of tape together?
2. What do you think will happen if you bring two bottom pieces of tape together?

Investigation: Electric Charges

Your teacher will instruct how you will perform the second part of this investigation.

Analyze Your Data

1. What happened when you brought the two top strips together? The bottom strips?
2. What do your observations suggest about the electric charges on the top pieces of tape? The bottom pieces?

Reflect

1. What test could you determine whether the top pieces of tape have a negative charge (more electrons) or a positive charge (less electrons).
2. Why do you think this would work?

Electrically Charged Particles

Read the last two paragraphs on page 90.

Explain why you receive a shock when you walk across the carpet and touch a doorknob. Use the words positive, negative, charges, static electricity.

Opposite charges _____ and like charges _____.

Atomic Bonding Read page 91 and identify the main ideas and supporting details from each paragraph.

Main Ideas	Details

Reflect

1. Models allow you to see some features of an object well, but they are not completely accurate. What is accurate about the models you made?
2. What parts of the atomic-model kit are not accurate? Identify from the reading how you know which parts are not accurate.
3. Imagine that you had to describe an atom to your friend. You need to make a comparison using the word “like”. What could you compare an atom to that would help your friend better understand what you are talking about? Describe also how your comparison is incomplete.

**Update the Project Board**

Record what you now know about what matter is made of, the subatomic particles, and how atoms combine to make molecules. Use the what are we learning? and What is our evidence? column. If you have new questions to answer the Big Question, you can put those questions in the What do we need to investigate column.

What's the Point? Summarize the main ideas of LS2.5

